Abstract

Title: Evaluation of body composition analysis using anthropometric measurements and methods based on bioimpedance

Aims: The main goal of this study is to analyze correlations of the data from bioimpedance with direct anthropometric measurements using statistical data analysis taking into consideration that the latter data is recognized as a gold standard.

Methods: The sample of 42 men and 20 women was evaluated using standard anthropometric techniques. In addition, the dimensions, which are necessary to establish the weight of segments in upper and lower arms. The obtained data was firstly evaluated using a universal software ANTROPO. The both samples were concurrently investigated using the bioimpedance methods and the relationships between the aforementioned data and data from InBody was evaluated by three independent statistical methods such as substantive significance (Cohen's d), two-parameter linear regression and robust Passing-Bablok regression.

Results: The results obtained enable to conclude that (with the exception of body height and BMI) the remaining parameters do not sufficiently correlate when using anthropometric measurements and data from InBody. As the relatively low number of participants may result in certain misrepresentation of the results, particularly in women, the aforementioned conclusions need further confirmation using a greater number of participants.

Keywords: linear regression, substantive significance, Cohen's d, Passing-Bablok regression, anthropometric examination, bioimpedance, body composition, weight of the segments